What is claimed is:

1. A compact and portable hypoxic gas delivery apparatus by producing from ambient air a product gas having a lower levels of oxygen concentration and delivering the product gas to a user of the apparatus, the apparatus comprising a pressure swing adsorption unit having at least one adsorber bed to receive ambient air and adsorb the nitrogen or oxygen from the ambient air to produce both a nitrogen enriched gas and an oxygen enriched gas, and control means for delivering the nitrogen enriched gas in pulse doses to a user at selectable rates during inhalation by the user.

2. The apparatus according to claim 1 and further comprising means for selectively delivering either the nitrogen enriched gas or the oxygen enriched gas to the user in pulse doses to the user.

3. The apparatus according to claim 1 in which the pressure swing adsorption unit comprises two adsorber beds alternately producing the enriched gases, and further comprising valve means for controlling the flow of air and gases substantially in the sequence as illustrated in FIG. 2.

4. The apparatus according to claim 1 and further comprising means for adjusting the enrichment of the nitrogen in the nitrogen enriched gas to simulate various geographic altitudes.

5. The apparatus according to claim 1 in which the control means actuates the flow of delivered gas upon initial inhalation and further comprises means for increasing or decreasing the effective flow rate of breathing the nitrogen enriched gas by increasing or decreasing the activation time during each inhalation cycle.

6. The apparatus according to claim 1 and further comprising means for adjusting the enrichment of the nitrogen in the nitrogen enriched gas to produce selectively different concentrations of oxygen and nitrogen in the nitrogen enriched gas.

7. The apparatus according to claim 1 in which the pressure swing adsorption unit comprises three adsorber beds alternately producing the enriched gases.

8. The apparatus according to claim 1 and further comprising means for powering the apparatus from any one of three sources including a rechargeable battery pack, an AC adapter

for connection to an AC outlet, and a DC adapter for a connection to the power system of a vehicle.

9. A compact and portable hypoxic gas delivery apparatus by producing from ambient air a product gas having a lower levels of oxygen concentration and delivering the product gas to a user of the apparatus, the apparatus comprising a pressure swing adsorption unit having at least one adsorber bed to receive ambient air and adsorb the nitrogen or oxygen from the ambient air to produce both a nitrogen enriched gas and an oxygen enriched gas, and means for selectively delivering either the nitrogen enriched gas or the oxygen enriched gas to a user during inhalation by the user.

10. The apparatus according to claim 9 and further comprising means control means for delivering the nitrogen enriched gas in pulse doses to the user at selectable rates during inhalation by the user.

11. The apparatus according to claim 10 in which the control means actuates the flow of delivered gas upon initial inhalation and further comprises means for increasing or decreasing the effective flow rate of breathing the nitrogen enriched gas by increasing or decreasing the activation time during each inhalation cycle.

12. The apparatus according to claim 9 in which the pressure swing adsorption unit comprises two adsorber beds alternately producing the enriched gases, and further comprising valve means for controlling the flow of air and gases substantially in the sequence as illustrated in FIGS. 4 and 5.

13. The apparatus according to claim 9 and further comprising means for adjusting the enrichment of the nitrogen in the nitrogen enriched gas to simulate various geographic altitudes.

14. The apparatus according to claim 9 and further comprising means for adjusting the enrichment of the nitrogen in the nitrogen enriched gas to produce selectively different concentrations of oxygen and nitrogen in the nitrogen enriched gas.

15. The apparatus according to claim 9 in which the pressure swing adsorption unit comprises three adsorber beds alternately producing the enriched gases.